

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

Dear Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal dated 7/17/2007 for consideration by the Board of Appeals and Interferences. 37 C.F.R. § 41.37.

**(i) REAL PARTY IN INTEREST**

The real party in interest is Topside Research, LLC.

**(ii) RELATED APPEALS AND INTERFERENCES**

There are no applications currently being appealed that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(iii) STATUS OF CLAIMS**

Claims 1-25 were pending and rejected in the Final Office Action dated 4/17/2007. Claims 1-25 are pending and are the subject of this appeal.

**(iv) STATUS OF AMENDMENTS**

No amendment has been filed subsequent to the final rejection.

**(v) SUMMARY OF CLAIMED SUBJECT MATTER**

**Independent Claim 1:**

A method for sending a data item from a source to selected destinations of a plurality of destinations in a switching network, said method comprising (p. 2, ll. 18-19; FIG. 6)<sup>1</sup>: examining said data item to determine a routing identifier for said data item (p. 2, ll. 20-21; FIG. 6, 520); using said routing identifier as an index, accessing a data structure comprising routing control values for said plurality of destinations (p. 2, ll. 21-22; FIG. 6, 522); and transferring said data item from said source to said selected destinations based on said routing control values, wherein said data item is concurrently transferred from said source to said selected destinations based on said routing control values (p. 2, ll. 22-24; FIG. 6, 524-534).

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<sup>1</sup> References are to the application as filed pursuant to 37 CFR 41.37(c)(1)(v).

**Independent Claim 8:**

A method for multicasting a frame in a router, said router comprising an input queue and a plurality of output queues, said method comprising (p. 2, ll. 25-27; FIG. 2; FIG. 5; FIG. 6): determining a destination identifier for said frame received by said input queue (p. 2, ll. 27-28; FIG. 6, 520; FIG. 5, 420); using said destination identifier, locating a data structure comprising a mask for said plurality of output queues (p. 2, ll. 28-29 & p. 3, ll. 1; FIG. 5, 430; FIG. 6, 522); and transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask, wherein the reference to said frame is concurrently transferred to at least two selected output queue controllers in accordance with said mask (p. 3, ll. 1-2; FIG. 6, 524-534).

**Independent Claim 14:**

A multicasting system in a switching fabric for routing data in a frame received at an input queue to a plurality of selected output queues, comprising (p. 3, ll. 3-5; FIG. 1; FIG. 6): a table having a plurality of predetermined routes, said table addressed by a destination ID in said frame, and said table comprising a mask corresponding to said destination ID (p. 3, ll. 5-7; FIG. 6, 512; FIG. 6, 522); a memory for storing said mask, said mask indicating said plurality of selected output queues (p. 3, ll. 7-8; FIG. 6, 524); and selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for copying said data to said plurality of selected output queues (p. 3, ll. 8-11; FIG. 6, 524-534).

**Independent Claim 22:**

A system for multicasting a frame in a router having a plurality of input ports and a plurality of output ports, comprising (p. 3, ll. 12-13; FIG. 2): a first crossbar switch for transferring said frame from an input port of said plurality of input ports to a shared memory (p. 3, ll. 13-15; FIG. 2, 150); a frame pointer for referencing said frame stored in said shared memory (p. 3, ll. 15-16; FIG. 2, 160); a second crossbar switch for transferring said frame using said frame pointer to a plurality of selected output ports of said plurality of output ports (p. 3, ll.

16-17; FIG. 2, 154); and a control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes (p. 3, ll. 17-19; FIG. 4, 430).

**Independent Claim 25:**

A method for sending a frame from a source to selected destinations of a plurality of destinations in a router, said method comprising (p. 2, ll. 18-20; FIG. 6): means for examining said frame to determine a destination identifier for said frame (p. 2, ll. 20-21; FIG. 6, 520); using said destination identifier as an index, means for accessing a data structure comprising a mask for said plurality of destinations (p. 2, ll. 21-22; FIG. 6, 522); and means for transferring at least one portion of said frame from said source to said selected destinations based on said mask, wherein said frame is concurrently transferred from said source to said selected destinations based on said mask (p. 2, ll. 22-24; FIG. 6, 524-534).

**(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-7, 14, 16, 18, 21 and 25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chin (US 5617421). However, as discussed in the Argument section below, claims 1-7, 14, 16, 18, 21 and 25 are patentable over Chin.

Claims 8-13, 15 and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chin in view of Nolan et al. (US 6,661,790). However, as discussed in the Argument section below, claims 8-13, 15 and 22-24 are patentable over Chin in view of Nolan.

Claim 17 was rejected under 103(a) as being unpatentable over Chin in view of RFC 1349. However, as discussed in the Argument section below, claim 17 is patentable over Chin in view of RFC 1349.

Claims 19 and 20 were rejected under 103(a) as being unpatentable over Chin in view of Flanders (US 6172980). However, as discussed in the Argument section below, claims 19 and 20 are patentable over Chin in view of Flanders.

(vii) ARGUMENT

**A. Rejection of Claims 1-7, 14, 16, 18, 21 and 25 under 102(b) as anticipated by Chin et al. (US Patent 5,617,421).**

To anticipate a claim, the reference must teach each and every element of the claim. MPEP §2131 provides:

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. [. . .] The identical invention must be shown in as complete detail as is contained in the ... claim.

As such, in order to assert that a single prior art reference anticipates a claim, the office action needs to show that each and every element is disclosed, either expressly or inherently, in the prior art reference. In this case, the office action fails to show that Chin discloses, either expressly or inherently, each and every limitation as recited in the claims. Therefore, the rejection should be reversed for failing to sufficiently make a prima facie case of anticipation. In addition, the claims are patentable over Chin as Chin does not disclose, either expressly or inherently, each and every limitation recited in the claims. Therefore, as shown in the arguments below, the claims are patentable over Chin.

**Claim 1**

Claim 1 is patentable over Chin as Chin does not disclose each and every limitation recited in claim 1. Independent claim 1 recites at least one limitation not disclosed, either expressly or inherently, by Chin.

First, claim 1 recites, among other limitations, “transferring said data item from said source to said selected destinations based on said routing control values, wherein said data item is **concurrently transferred** from said source to said selected destinations based on said routing control values”. (emphasis added). The office action asserts that Chin teaches this limitation in Fig. 4 and at col. 18, lines 9-22. However, Chin nowhere discloses, teaches or suggests “concurrently” transferring the data item from the source to the selected destinations.

Chin discloses the following at col. 18, lines 9-22:

If the packet is not a broadcast packet, it is determined whether the packet is a multicast packet at step 1130. If the packet is a multicast packet, a look-up based on the source address of the multicast packet is performed at step 1135. At step 1140, the packet processor of the port of entry determines whether the indicator bit of the destination endstation's table entry is set. If the indicator bit is not set, the multicast packet is forwarded based on the source port of exit mask at step 1145. If the indicator bit is set, the packet processor performs a logical AND operation using the source and destination port of exit masks as operands to yield a final port of exit mask at step 1150. The multicast packet is **forwarded** based on the final port of exit mask at step 1155.

The above cited portion of Chin discloses how multicast packets are processed. Specifically, when a multicast packet is detected, first a look-up is performed based on the address of the source of where the packet came from. Next, if the destination endpoint is known, then the multicast packet is forwarded to the destination based on the known path from the source to the destination. Alternatively, if the destination endpoint is not known, then Chin discloses a method to determine the path from the source to the destination. Once the path to the destination endpoint is known, Chin discloses that the "multicast packet **is forwarded** based on the final port of exit mask". (emphasis added). In other words, Chin discloses that the multicast packet is forwarded but nowhere does it disclose, either explicitly or inherently, that the multicast packet is forwarded **concurrently** to other destinations. Therefore, while Chin explains how it routes the multicast packets, Chin nowhere discloses that these multicast packets are routed "concurrently", or in any other manner that is analogous to routing the packets "concurrently". In other words, Chin nowhere even suggests that these packets are routed simultaneously, or in parallel or any other manner that is analogous to routing packets concurrently.

Therefore, while Chin teaches routing multicast packets, Chin nowhere teaches routing the multicast packets "**concurrently**". More specifically, Chin does not teach "transferring said data item from said source to said selected destinations based on said routing control values, wherein said data item is **concurrently transferred** from said source to said selected destinations based on said

routing control values”. Therefore, because Chin does not disclose every limitation recited in claim 1, claim 1 is patentable over Chin. As such, the anticipation rejection of claim 1 should be reversed.

Further, by virtue of their dependency on claim 1, claims 2-7 are patentable over Chin. As such, the anticipation rejection of claims 2-7 should be reversed.

#### Claim 25

To the extent that claim 25 includes a similar limitation as claim 1, namely “transferring said data item from said source to said selected destinations based on said routing control values, wherein said data item is **concurrently transferred** from said source to said selected destinations based on said routing control values”, claim 25 is patentable over Chin for the same reasons claim 1 is patentable over Chin. As such, the anticipation rejection of claim 25 should be reversed.

#### Claim 14

As to claim 14, the office action fails to show that Chin teaches every limitation recited in claim 14 “in as complete detail as is contained in the ... claim”, as required by MPEP 2131. Further, the office action fails to clearly identify what portions of Chin teach all of the claimed limitations as required by 37 CFR 1.104(c)(2). Moreover, Chin fails to disclose, either expressly or inherently, the limitations recited in claim 14. As such, the rejection of claim 14 should be reversed for at least the following two reasons.

First, the office action fails to show where Chin teaches “selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for **copying said data to said plurality of selected output queues**” as recited in claim 14. (emphasis added). The office action asserts that claim 14 is rejected under the same rationale as claim 1 since “they recite substantially identical subject matter”. (Office action, page 6). However, the office action does not clearly identify where Chin teaches the limitations claimed in claim 14. That is, the office action does not clearly identify where Chin teaches “selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for **copying said data to said plurality of selected output queues**”. As such, the office action fails to clearly explain which “particular part” of Chin discloses the limitations of claim 14 as required by

37 CFR 1.104(c)(2). Therefore, because the office action fails to make a prima facie case of anticipation, the rejection should be reversed.

Second, even if, in arguendo, the office action sufficiently asserted that Chin teaches “selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for **copying said data to said plurality of selected output queues**”, claim 14 is still patentable over Chin as Chin does not disclose this limitation. As identified in the portion of Chin cited above, Chin merely discloses “forwarding” the packets based on the information in the look-up table. However, Chin nowhere discloses “copying said data to said **plurality** of selected output queues”. That is, “forwarding” packets is not the same as “copying said data to said plurality of selected output queues”. Therefore, while Chin teaches a method of **forwarding** packets using a look-up table, Chin nowhere teaches or suggests “**copying** said data to said **plurality** of selected output queues” as claimed in claim 14. As such, Chin does not disclose, either expressly or inherently, “copying said data to said **plurality** of selected output queues” as claimed in claim 14. Therefore, because Chin does not teach every limitation recited in claim 14, claim 14 is patentable over Chin. As such, the anticipation rejection of claim 14 should be reversed. For at least the two reasons argued above, the anticipation rejection of claim 14 should be reversed.

Claims 16, 18 and 21

Further, by virtue of their dependency on claim 14, claims 16, 18 and 21 are patentable over Chin. As such, the anticipation rejection of claims 16, 18 and 21 should be reversed.

**B. Rejection of Claims 8-13, 15 and 22-24 under 103(a) as being unpatentable over Chin in view of Nolan et al. (US Patent 6,661,790).**

Claim 8

Independent claim 8 includes a similar limitation as claim 1, namely “transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask, wherein the reference to said frame is **concurrently transferred** to at least two selected output queue controllers in accordance with said mask”. (emphasis added). As argued above, Chin does not disclose, teach or suggest this limitation. Further, Nolan does not cure this deficiency. That is,



Nolan nowhere teaches or suggests the limitation of “transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask, wherein the reference to said frame is **concurrently transferred to at least two** selected output queue controllers in accordance with said mask”. Nolan is directed to routing packets using a ring architecture. Specifically, in Nolan, packets are routed through a chain in which a packet is forwarded to the next following destination in the chain and further the packet is received from the previous item in the chain. As such, Nolan teaches using a ring architecture whereby packets are passed through a chain until the packet reaches its destination. While Nolan teaches routing packets using a ring architecture, Nolan nowhere teaches or suggests the limitation of “transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask, wherein the reference to said frame is **concurrently transferred to at least two** selected output queue controllers in accordance with said mask”. As such, because Chin and Nolan fail to teach or suggest all of the limitations of claim 8, claim 8 is patentable over the cited references. As such, the 103(a) rejection of claim 8 should be reversed.

Further, by virtue of their dependency on claim 8, claims 9-13 are patentable over Chin and Nolan. As such, the 103(a) rejection of claims 9-13 should be reversed.

#### Claim 15

Claim 15 is dependent on claim 14. As argued above, claim 14 is patentable over Chin because Chin fails to disclose the limitations of claim 14. Nolan also fails to cure this deficiency as it fails to disclose, teach or suggest the limitations of claim 14. As such, claim 15 is patentable over Chin and Nolan by virtue of its dependency on claim 14 and by virtue of the fact that Nolan does not cure the deficiencies of Chin and therefore the cited references do not teach or suggest all of the limitations of claim 15.

#### Claim 22

MPEP 2142 states that one requirement for showing a prima face case of obviousness exists is to show that the prior art references “teach or suggest all the claim limitations”. Regarding claim 22, the office action fails to show that Chin teaches every limitation recited in claim 22 as required

by MPEP 2142. Moreover, Chin and Nolan fail to teach or suggest all of the limitations recited in claim 22. As such, the rejection of claim 22 should be reversed for at least the following two reasons.

First, the office action fails to show where Chin and Nolan teach the limitations of claim 22. Specifically, the office action fails to show where Chin and Nolan teach “a first crossbar switch for transferring... to a shared memory; a frame pointer for referencing said frame stored in said shared memory”. In addition, the office action fails to show where Chin and Nolan teach “a second crossbar”. Finally, the office action fails to show where Chin and Nolan teach “a control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes.” The office action states that claim 22 is rejected “under the same rationale as claim 8” since it recites “substantially identical subject matter”. However, claim 22 includes limitations that are not included in claim 8 and the office action nowhere identifies where these limitations of claim 22 are taught or suggested in Chin or Nolan. Therefore, the office action fails to meet all of the requirements necessary to show a prima facie case of obviousness because the office action fails to show that the prior art references “teach or suggest all the claim limitations”. As such, the 103(a) rejection should be reversed.

Second, even if, in arguendo, the office action sufficiently met its burden of proving a prima facie case of obviousness, claim 22 is still patentable over the cited references as the references do not teach or suggest all the claim limitation. Specifically, Chin and Nolan nowhere teach or suggest the “first crossbar switch”, the “second crossbar switch”, nor a “control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes”. As explained above, Chin is directed to using a look-up table to identify how to route the multicast packets. Chin however nowhere teaches or suggests using a “first crossbar switch”, the “second crossbar switch”, or a “control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes”. In addition, Nolan is directed to routing packets using a ring architecture. That is, in Nolan, packets are routed through a chain in which a packet is forwarded to the next following destination in the chain and further the packet is received from the previous item in the chain. Therefore, Nolan teaches using a ring architecture

whereby packets are passed through a chain until the packet reaches its destination. However, Nolan nowhere teaches or suggests the limitations of claim 22. Specifically, Nolan nowhere teaches or suggests “first crossbar switch”, the “second crossbar switch”, nor a “control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes”. As such, because Chin and Nolan nowhere teach or suggest the limitations of claim 22, claim 22 is patentable over the cited art.

For at least the two reasons set forth above, the 103(a) rejection of claim 22 should be reversed.

Further, by virtue of their dependency on claim 22, claims 23-24 are patentable over Chin and Nolan. As such, the 103(a) rejection of claims 23-24 should be reversed.

**C. Claim 17 is rejected under 103(a) as being unpatentable over Chin in view of RFC 1349.**

Claim 17 is dependent on claim 14. As argued above, claim 17 is patentable over Chin because Chin fails to disclose the limitations of claim 17. RFC 1349 also fails to cure this deficiency as it fails to disclose, teach or suggest the limitations of claim 17. As such, claim 17 is patentable over Chin and RFC 1349 by virtue of its dependency on claim 14 and by virtue of the fact that RFC 1349 does not cure the deficiencies of Chin and therefore the cited references do not teach or suggest all of the limitations of claim 17.

**D. Claims 19 and 20 are rejected under 103(a) as being unpatentable over Chin in view of Flanders (US 6172980).**

Claims 19 and 20 are dependent on claim 14. As argued above, claims 19 and 20 are patentable over Chin because Chin fails to disclose the limitations of claim 17. Further, Flanders fails to cure this deficiency as it fails to disclose, teach or suggest the limitations of claims 19 and 20. As such, claims 19 and 20 are patentable over Chin and Flanders by virtue of its dependency on claim 14 and by virtue of the fact that Flanders does not cure the deficiencies of Chin and therefore the cited references do not teach or suggest all of the limitations of claims 19 and 20.

**CONCLUSION AND RELIEF**

In view of the foregoing, it is believed that all claims patentably define the subject invention over the prior art of record and are in condition for allowance. The undersigned requests that the Board overturn the rejection of all claims and hold that all of the claims of the above referenced application are allowable.

Date: September 17, 2007

Respectfully submitted,



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**(viii) CLAIMS APPENDIX**

The claims involved in this Appeal are as follows:

1. A method for sending a data item from a source to selected destinations of a plurality of destinations in a switching network, said method comprising:
  - examining said data item to determine a routing identifier for said data item;
  - using said routing identifier as an index, accessing a data structure comprising routing control values for said plurality of destinations; and
  - transferring said data item from said source to said selected destinations based on said routing control values, wherein said data item is concurrently transferred from said source to said selected destinations based on said routing control values.
2. The method of claim 1 wherein said data structure comprises a table.
3. The method of claim 2 wherein said table comprises predetermined routing information.
4. The method of claim 1 wherein said data item comprises a portion of a frame.
5. The method of claim 1 wherein said routing control values is part of a mask.
6. The method of claim 1 wherein said source comprises an input queue.
7. The method of claim 1 wherein said switching network is part of a router.
8. A method for multicasting a frame in a router, said router comprising an input queue and a plurality of output queues, said method comprising:
  - determining a destination identifier for said frame received by said input queue;
  - using said destination identifier, locating a data structure comprising a mask for said plurality of output queues; and

transferring a reference to said frame to at least two selected output queue controllers in accordance with said mask, wherein the reference to said frame is concurrently transferred to at least two selected output queue controllers in accordance with said mask.

9. The method of claim 8 further comprising: copying a word associated with said reference to said frame to selected output queues of said plurality of output queues corresponding to said selected output queue controllers.

10. The method of claim 8 wherein said data structure comprises a table, said table comprising said mask.

11. The method of claim 10 wherein said destination identifier is an index into said table for selecting said mask.

12. The method of claim 8 wherein said frame is stored in a shared memory and is located by said reference to said frame.

13. The method of claim 8 wherein said reference to said frame includes a pointer to said frame.

14. A multicasting system in a switching fabric for routing data in a frame received at an input queue to a plurality of selected output queues, comprising:

a table having a plurality of predetermined routes, said table addressed by a destination ID in said frame, and said table comprising a mask corresponding to said destination ID;

a memory for storing said mask, said mask indicating said plurality of selected output queues; and

selected output queue control modules for said plurality of selected output queues, said selected output queue control modules used for copying said data to said plurality of selected output queues.

15. The multicasting system of claim 14 further comprising:

a start of frame pointer for addressing a memory area in a shared memory having said frame, wherein said start of frame pointer is concurrently copied to said selected output queue modules.

16. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a destination ID, and data.

17. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a route, and user defined control information.

18. The multicasting system of claim 14 wherein said frame has a frame format comprising: a type, a route, and data.

19. The multicasting system of claim 18 wherein said route includes a multicast flow ID.

20. The multicasting system of claim 18 wherein said route includes a unicast destination port ID.

21. The multicasting system of claim 18 wherein said memory for storing said mask includes a lockable row.

22. A system for multicasting a frame in a router having a plurality of input ports and a plurality of output ports, comprising:

a first crossbar switch for transferring said frame from an input port of said plurality of input ports to a shared memory; a frame pointer for referencing said frame stored in said shared memory;

a second crossbar switch for transferring said frame using said frame pointer to a plurality of selected output ports of said plurality of output ports; and

a control unit for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes.

23. The system of claim 22 wherein transferring said frame using said frame pointer to a plurality of selected output ports happens in parallel.

24. The system of claim 22 wherein said control unit comprises a lockable cache memory for storing a mask, said mask used in selecting said plurality of selected output ports.

25. A method for sending a frame from a source to selected destinations of a plurality of destinations in a router, said method comprising:

means for examining said frame to determine a destination identifier for said frame;  
using said destination identifier as an index, means for accessing a data structure comprising a mask for said plurality of destinations; and  
means for transferring at least one portion of said frame from said source to said selected destinations based on said mask, wherein said frame is concurrently transferred from said source to said selected destinations based on said mask.

**(ix) EVIDENCE APPENDIX**

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title. No other evidence has been entered by the examiner and relied upon by appellant in the appeal.

**(x) RELATED PROCEEDINGS APPENDIX**

Since there are no applications currently being appealed that may directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal, there are no copies of decisions rendered by a court or the Board.